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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/576,494	04/20/2006	Takashi Hattori	1270.45867X00	3727
20457 7590 12/12/2007 ANTONELLI, TERRY, STOUT & KRAUS, LLP 1300 NORTH SEVENTEENTH STREET SUITE 1800 ARLINGTON, VA 22209-3873			EXAMINER CHU, JOHN S Y	
			ART UNIT 1795	PAPER NUMBER
			MAIL DATE 12/12/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/576,494	Applicant(s) HATTORI ET AL.	
	Examiner John S. Chu	Art Unit 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 2-6,9-11,14 and 16-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 2,4,10,14,16-18 and 20 is/are allowed.
- 6) ☒ Claim(s) 3,5,6,9,11,19 and 21-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This Office action is in response to the amendment filed September 27, 2007.

1. The rejection under 35 U.S.C. 102(e) over FUJITA et al (2005/00148876) is **withdrawn** in view of the amendment to the claims adding new claim 19 wherein the second acid generating compound are specified.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 3, 5, 6, 9, 11, 19, 21, 22 and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of FUJITA et al (2005/00148876), SUWA et al (6,933,087) and NUNOMURA et al (6,232,032).

The claimed invention is now drawn to the following:

19. (New) A positive photosensitive resin composition comprising:

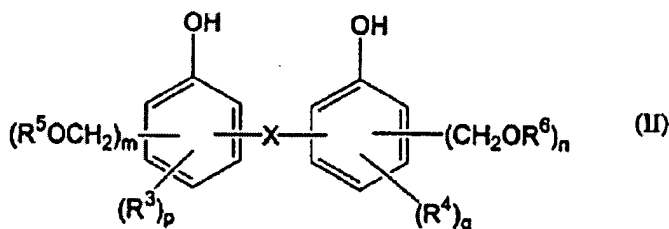
(a) alkaline aqueous solution-soluble polyamide having a polyoxazole precursor structure;

(b) an o-quinonediazide compound;

(c) a latent acid generator which generates acid upon heating; and

(d) a compound having a phenolic hydroxyl group,

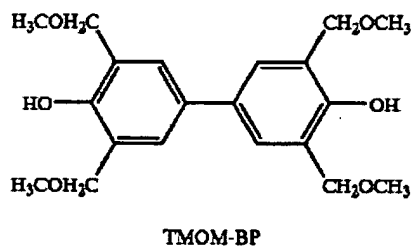
wherein the component (d) is a compound represented by the following general formula (II):



wherein X represents a single bond or a divalent organic group, each of R^3 and R^4 independently represents a hydrogen atom or a monovalent organic group, R^5 and R^6 are hydrogen atoms, each of m and n is independently an integer of 1 to 3, and each of p and q is independently an integer of 0 to 4.

FUJITA et al (2005/0014876) discloses a photosensitive resin composition comprising a polybenzoxazole, and two photoacid generating compounds which includes a quinone diazide compound and a sulfonium salt, see Examples 2 and Comparative examples 4-7 in Table 1, page

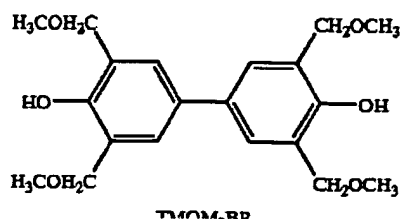
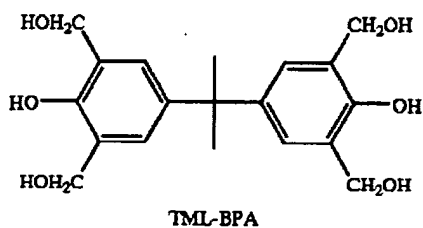
29. Example 2 discloses a fourth component, which is a phenol hydroxyl group compound of the following;



from page 25.

FUJITA et al lacks the now claimed compound of formula (II) in claim 19.

SUWA et al discloses a positive photosensitive composition comprising a polyamic acid ester, a phenolic hydroxyl group containing compound, a thermal crosslinkable compound and a esterified quinone diazide compound. Applicants are directed to crosslinkable compounds in column 17, line 49 - column 23, line 33, wherein a crosslinking compound the same as disclosed as component (d) is found. The examiner notes that the following compounds are disclosed together as functionally equivalent for the use a crosslinking agent in photosensitive composition comprising polybenzoxazole and two photoacid generators:



NUNOMURA et al discloses at column 10, lines 59-63 the preferred “dissolution inhibitor” as 4-methoxyiodonium trifluoromethanesulfonate listed among four other compounds. The compound though called a “dissolution inhibitor” also functions as a heat acid generating compound wherein the compounds used are inseparable from its properties. The description in a name changes not the properties and functions of the compound. Here the reference discloses the interchangeable use of polymers such as polybenzoxazole precursor and polyamic acid esters, see column 2, lines 33-45.

Thus based on the combination of the references listed above a composition comprising the components of claim 19 obvious to the skilled artisan wherein the component (d) can be used with a polybenzoxazole, a quinone diazide and a sulfonium salt as seen SUWA et al.

It would have been *prima facie* obvious to one of ordinary skill in the art of photosensitive resin composition to use the crosslinking agents of SUWA et al such as TML-BPA above in place of TMOM-BP in FUJITA et al and reasonably expect same or similar results as disclosed in FUJITA et al or SUWA et al or NUNOMURA et al for excellent sensitivity and storage stability.

4. Claims 2, 4, 10, 14, 16-18 and 20 are allowed.

In combination with the comparative evidence of record and amended claims, claims 2, 4, 10, 14, 16-18 and 20 are seen as allowable over the prior art references of record. The lower heating step in the comparative examples show that the same fully cured composition can be realized without heating to temperatures greater than 300 degree C.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Chu whose telephone number is (571) 272-1329. The examiner can normally be reached on Monday - Friday from 9:30 am to 6:00 pm.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Cynthia Kelly, can be reached on (571) 272-1526

The fax phone number for the USPTO is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PMR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/John S. Chu/
Primary Examiner, Group 1700

J.Chu
December 10, 2007